CS/MCA/Even/2nd Sem/MCA-201/2014

2014

Data Communication & Computer Network

Time Alloted : 3 Hours   *Full Marks : 70*

The figure in the margin indicate full marks.
Candidates are required to give their answers in their
own words as far as practicable

GROUP - A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following:

                                                                10x1=10

i)   Which topology requires a multipoint connection?

   a) Mesh   b) Star   c) Bus   d) Ring

ii)   Protocols are

   a) Agreements on how communication components and DTEs are to communicate
   b) Logical communication channels used for transferring data
   c) Physical communication channels used for transferring data
   d) None of these

iii)   The maximum length of the data field in Token Bus is

   a) 8714   b) 8182   c) 8823   d) 4500

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IV) **ALOHA**

  a) Is used for channel allocation problem
  b) Is used for data transfer
  c) Is buffering
  d) All of these

v) **If the bandwidth of a signal is 5 KHz and the lowest frequency is 52 KHz, what is the highest frequency?**

  a) 5KHz b) 10 KHz c) 47 KHz d) 57KHz

vi) **IP addres in the B-class is given by**

  a) 125.123.123.2 b) 191.023.21.54
  c) 192.128.32.56 d) 10.14.12.34

vii) **TCP is a**

  a) reliable connection oriented protocol
  b) Unreliable connection oriented protocol
  c) reliable connection less protocol
  d) unreliable connection less protocol.

viii) **Repeater operates in**

  a) Physical layer b) Data link layer
  c) Network layer d) Transport layer

ix) **_____ is the access protocol used by traditional Ethernet**

  a) CSMA b) CSMA/CD
  c) ALOHA d) TOKEN passing

x) **The Ethernet address is**

  a) 6 bytes b) 3 bytes
  c) 8 bytes d) Depends on media

xi) **If 10 devices are arranged in a MESH topology, how many ports are need for each device?**

  a) 10 b) 20 c) 21 d) 9

xii) **The main function of Transport layer is**

  a) node to node delivery
  b) process to process delivery
  c) synchronization
  d) updating and maintenance of routing tables.

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GROUP - B

(Short Answer Type Questions)
Answer any *three* of the following.　　　3x5=15

2. What is IP addressing? What are the different classes of IP addressing? What is the difference between static and dynamic IPs? ·

3. State the advantages of IPv6 over IPv4

4. Differentiate between bit rate and baud rate with examples.

5. a) What do you mean by Multiplexing?

   b) Discuss the basic difference between TDM & FDM.

6. Explain the differences between guided and unguided media in communication. What are the protocols used for smooth communication for unguided media?

GROUP - C

(Long Answer Type Questions)
Answer any *three* of the following.　　　3x15=45

7. a) Draw the digital signal encoding format for NRZI, NRZL, RZ, Manchester Code and Differential codings for the digital signal 01001100011 and also write down the procedure in brief.

   b) In QPSK modulation data rate is 9600 bps. Calculate baud rate.

   c) An analog signal carries 4 bits in each signal element. If 1000 signal elements are sent per second, find baud rate and bit rate.

8. a) Why do we need use of layered protocol?

   b) Give three differences between OSI reference model and TCP/IP model.

   c) The bit pattern 01011001 is to be transmitted using the following techniques.

      (i) ASK

        (ii) FSK

        (iii) PSK

9. a) Draw the block diagram of stop-and wait ARQ protocol and explain it.

   b) Explain the sliding window. What is Piggybacking?

10. a) What do you mean by congestion? Why does congestion occur in the network layer?

   b) Describe the concept of Leaky Bucket for controlling congestion.

   c) Explain the terms 'Bridging & Routing'.

11. Write short notes on the following :

      a) IP

      b) Public key & Private Key

      c) Circuit switched and packet switched networks

      d) 802.3 Lan

      e) X.25 protocol

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